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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,110	06/26/2003	Karp-sik Youn	1293.1731	3637
21171	7590	12/19/2005		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER MORRISON, THOMAS A	
			ART UNIT	PAPER NUMBER
			3653	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/606,110	Applicant(s) YOUN, KARP-SIK	
	Examiner Thomas A. Morrison	Art Unit 3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 20-29, 31-33 and 35-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15-18, 20-29, 31-33 and 35-38 is/are rejected.
- 7) ☒ Claim(s) 10 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The indicated allowability of claims 9-15, 32 and 35 is withdrawn in view of the newly discovered reference(s) to U.S. Patent No. 6,000,689 (Furuki et al.).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-7, 21-29, 31, 33, 37 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: (1) the structural relationship in independent claim 1, between the lever and the separately recited lever shaft, which allows the shaker to intermittently contact the shaking plate to shake the lever. One possible way to resolve this issue is to amend claim 1 to recite that the lever is connected to the lever shaft.

Claim 21 recites the limitation "the lever shaft" in line 13. There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 37 and 38, it is unclear what is meant by the recited "to prevent the paper from not being picked-up".

Also, with regard to independent claim 38, MPEP, section 2173.05(p) states, "A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph." *Id.* Claim 38 recites a **method of picking up sheets of paper in a printer**, the method comprising: intermittently applying a friction force, via a force applying unit...wherein **the force applying unit comprises**... After this, the structure of the force applying unit is recited in detail. Since claim 38 claims both an apparatus and the method of using the apparatus, this claim is indefinite.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 38 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In particular, claim 38 is directed to neither a "process" nor a "machine," but rather embrace or overlap two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. See, MPEP, section 2173.05(p). Specifically, claim 38 recites both a process and a machine.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 4-6, 8-9, 11, 13, 16-18, 20-29, 31-36 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,000,689 (Furuki et al.).

Regarding claim 1, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame (Fig. 1), a pickup roller (3) which picks up sheets of paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a front portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3), the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) which is installed to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and attached to at least one front side of each of the paper guides (see, e.g., Fig. 8),

a lever (including 4 and the horizontal portion of 7 in Fig. 4) which is installed at a side of the stripper and has a contact surface (i.e., surface of 4) contacting the paper transferred by the pickup roller (3), and

a lever shaking unit which shakes the lever (including 4 and the horizontal portion of 7 in Fig. 4) to intermittently contact a side of the paper transferred by the pickup roller (3), the lever shaking unit comprising

a lever shaft (17) installed on the frame,

a shaking plate (vertical portion of 7 extending from 17 to 9 in Fig. 4) extending from the lever shaft (17), and

a shaker (including 8) installed on the frame and intermittently contacting the shaking plate to shake the lever;

wherein a friction force is intermittently applied to the side of the paper such that double feeding of the paper is prevented (Abstract).

Regarding claim 2, Fig. 8 shows that the stripper (upper slanted portion attached above 20 in Fig. 8) comprises:

an opening groove (Fig. 8) formed on an upper portion of the stripper such that the contact surface (i.e., surface of 4) of the lever (including 4 and the horizontal portion of 7 in Fig. 4) contacts the side of the paper through the opening groove (see, e.g., Fig. 6).

Regarding claim 4, Fig. 8 shows that the stripper (upper slanted portion attached above 20 in Fig. 8) comprises

a plurality of sub-strippers (two upper slanted portions in Fig. 8), and

the lever (including 4 and the horizontal portion of 7 in Fig. 4) comprises a plurality of sub-levers having the same number as the sub-

strippers. In particular, Fig. 1 appears to show that there are two horizontal portions that extend out to both sides of 4).

Regarding claim 5, the friction force intermittently applied to the side of the paper by the lever is inherently larger than a resistance applied to the paper by

the stripper, so that the paper can be fed past the stripper but stopped by the outer surface of 4 on the lever.

Regarding claim 6, Figs. 1-4, 8, 22 and 24 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame (Fig. 1), a pickup roller (3) which picks up sheets of paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portion labeled 20 in Fig. 8) which are installed at a front portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3), the apparatus comprising:

- a stripper (upper slanted portion attached above 20 in Fig. 8) which is installed to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and attached to at least one front side of each of the paper guides (see, e.g., Fig. 8),

- a lever (including horizontal portion of 7 and 25 in Fig. 22) which is installed at a side of the stripper and has a contact surface (i.e., surface of 25) contacting the paper transferred by the pickup roller (3), and

- a lever shaking unit which shakes the lever (including horizontal portion of 7 and 25 in Fig. 22) to intermittently contact a side of the paper transferred by the pickup roller (3), the lever shaking unit comprising

 - a lever shaft (17) installed on the frame,

 - a shaking plate (vertical portion of 7 extending from 17 to 9 in Fig. 4) extending from the lever shaft (17), and

a shaker (including 8) installed on the frame and intermittently contacting the shaking plate to shake the lever;
wherein a friction force is intermittently applied to the side of the paper such that double feeding of the paper is prevented (Abstract).

Also, the lever (including the horizontal portion of 7 and 25) comprises:
a friction pad (26 in Fig. 24) attached to the contact surface (i.e., surface of 25) of the lever.

Regarding claim 8, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame, a pickup

roller (3) which picks up sheets of paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a front portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3), the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) which is installed to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and attached to at least one front side of each of the paper guides (see, e.g., Fig. 8);

a lever (including 4 and 7 in Fig. 4) which is installed at a side of the stripper and has a contact surface (i.e., surface of 4) contacting the paper transferred by the pickup roller (3);

a lever shaking unit (including 8) which shakes the lever (including 4 and 7) to intermittently contact a side of the paper transferred by the pickup roller (3), and

a lever shaft (17) which is placed at the side of the stripper and rotatably installed on the frame of the printer, wherein the lever (including 4 and 7) is fixed on the lever shaft (17), and the lever shaking unit (including 8) shakes the lever shaft (17) so that the lever (including 4 and 7) is shaken,

wherein a friction force is intermittently applied to the side of the paper such that double feeding of the paper is prevented (Abstract). In as much as the lever shaft of the instant application is shaken by being forced to rotate, so is the lever shaft (17) of the Furuki et al. patent.

Regarding claim 9, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame, a pickup roller (3) which picks up sheets of paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a front portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3), the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) which is installed to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and attached to at least one front side of each of the paper guides (see Fig. 8),

a lever (including 4 and the horizontal portion of 7 in Fig. 4) which is installed at a side of the stripper and has a contact surface (i.e., outer surface of 4) contacting the paper transferred by the pickup roller (3),

a lever shaking unit (including 8) which shakes the lever to intermittently contact a side of the paper transferred by the pickup roller (3), and

a lever shaft (17) which is placed at the side of the stripper and rotatably installed on the frame of the printer, wherein the lever (including 4 and the horizontal portion of 7 in Fig. 4) is fixed on the lever shaft (17), and the lever shaking unit (including 8) shakes the lever shaft (17) so that the lever is shaken,

wherein a friction force is intermittently applied to the side of the paper such that double feeding of the paper is prevented (Abstract), and the lever shaking unit (including 8) comprises:

a shaking plate (vertical portion of 7 in Fig. 4) fixed on the lever shaft (17),
a cam gear (8) which contacts a first side of the shaking plate, rotates, and periodically shakes the shaking plate so that the lever coupled with the lever shaft (17) is shaken,

an elastic member (11) which is installed at a second side of the shaking plate and applies an elastic force to the shaking plate so that the shaking plate is closely attached to the cam gear (8) and

a driving motor (30 in Fig. 2) which rotates and drives the cam gear (8).

Regarding claim 11, Fig. 4 shows that the elastic member (11) comprises:
a compression coil spring.

Regarding claim 13, Fig. 4 shows that the cam gear (8) comprises a cam surface; and
the lever shaking unit comprises at least one cam protrusion formed on the cam surface that contacts the shaking plate.

Regarding claim 16, Figs. 1-4, 6, 8, 22 and 23 disclose a method of preventing paper double feeding in a paper feeding unit of a printer when sheets of paper stacked on a paper cassette (near 1) are picked-up and transferred into the printer, the method comprising:

applying a first paper feeding resistance force (i.e., applying feeding resistance force via slanted portions above 20 on both sides in Fig. 8) to a first sheet of paper which is picked-up by a pickup roller (3) and transferred along a paper path into the printer, and

intermittently applying a second paper feeding resistance force (i.e., applying second paper feeding resistance force of teeth on 25, which is part of a lever (including 7 and 25 in Figs. 22-23)) to a side of one of the first sheet of paper and a second sheet of paper disposed under the first sheet of paper,

wherein the second paper feeding resistance force includes a friction force intermittently applied to the side of the second sheet of paper (i.e., sheet below top sheet in Figs. 22-23) by a lever (including 7 and 25 in Figs. 22 and 23) which is installed to be shaken on the paper path.

Regarding claim 17, Figs. show that the applying of the first paper feeding resistance force comprises:

applying a resistance generated by a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) which is installed to be inclined at a predetermined angle on the paper path. See also Fig. 6 for stripper.

Regarding claim 18, the first paper feeding resistance force (i.e., feeding resistance force via slanted portions above 20 on both sides in Figs. 7-8) is inherently smaller than a first paper feeding force applied to the first sheet of paper by the pickup roller (3) and is larger than a paper feeding force applied to the second sheet of paper due to a friction force between the first and second sheets of paper. This condition is needed to move the sheets along with the roller (3), but also separate the sheets.

Regarding claim 20, using the toothed section of 25 in Figs. 22-23 to provide the second paper feeding resistance force will result in the second feeding resistance force being larger than the first paper feeding resistance force, as claimed.

Regarding claim 21, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame, a pickup roller (3) which picks up paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3) in a paper feeding path, the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) disposed on the paper feeding path, fixedly installed on the frame to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1),

and contacting the paper transferred by the pickup roller (3) to apply a first paper feeding resistance force to the paper;

- a lever shaking unit, comprising
 - a shaft (17) movably installed on the frame,
 - a plate (vertical portion of 7 in Fig. 4) extending from the lever shaft (17), and
 - a motor (30), selectively contacting the plate to rotate the lever shaft (17), and
 - a lever (including 4 and horizontal portion of 7 in Fig. 4) disposed on the paper feeding path, installed on the shaft (17), and having a contact surface (i.e., outer surface of 4) selectively contacting the paper transferred by the pickup roller (3) to apply a second paper feeding resistance force to the paper in correspondence with the shaft (17) rotation.

Regarding claim 22, Fig. 6 shows that the paper comprises a first paper (1a) and a second paper (1b), and the stripper applies the first paper feeding resistance force to the first paper (1a) while the contacting surface (i.e., outer surface of 4) of the lever (including 4 and horizontal portion of 7) applies the second paper feeding resistance force to the second paper (1b).

Regarding claim 23, Figs. 6 and 7 show that the lever (including 4 and horizontal portion of 7) selectively contacts the paper while the stripper contacts the paper.

Regarding claim 24, Figs. 6 and 7 show that the lever (including 4 and horizontal portion of 7) intermittently applies the second paper feeding resistance force to the paper.

Regarding claim 25, Figs. 6 and 7 show that the lever (including 4 and horizontal portion of 7) moves in a direction between a first position (Fig. 6) to allow the contact surface (outer surface of 4) to contact the paper and a second position (Fig. 7) to allow the contact surface (outer surface of 4) to be moved away from the paper passing the stripper.

Regarding claim 26, Figs. 6 and 7 show that the lever (including 4 and horizontal portion of 7) rotates in a direction (up and down) perpendicular to the paper feeding direction (left to right).

Regarding claim 27, Fig. 8 shows that the stripper (upper slanted portions attached above 20 on both sides in Fig. 8) comprises

another contact surface (upper surface) contacting the paper and an opening (Fig. 8) formed through the another contact surface, and the contact surface of the lever is disposed on the opening of the another contact surface of the stripper.

Regarding claim 28, Figs. 6 and 8 show that the contact surface (i.e., outer surface of 4) of the lever (including 4 and horizontal portion of 7) contacts the paper through the opening.

Regarding claim 29, Figs. 6 and 7 show that the paper comprises a first paper (1a) and a second paper (1b), the first paper (1a) and the second paper (1b) generate a friction force between the first paper (1a) and the second paper (1b), and the second paper feeding resistance force is equal to or greater than the friction force. Element 4 holds back paper (1b), but allows paper (1a) to be fed. In order for this to occur, the friction must be as claimed.

Regarding claim 31, Fig. 4 shows that the lever shaking unit further comprises:
a resilient member (11) biasing the lever in a first direction.

Regarding claim 32, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame. a pickup roller (3) which picks up paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3) in a paper feeding path, the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) disposed on the paper feeding path, fixedly installed on the frame to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and contacting the paper transferred by the pickup roller (3) to apply a first paper feeding resistance force to the paper;

a lever (including 4 and horizontal portion of 7 in Fig. 4) disposed on the paper feeding path, movably installed on the frame, and having a contact surface (i.e., outer surface of 4) contacting the paper transferred by the pickup roller to apply a second paper feeding resistance force to the paper; and

a lever shaking unit mounted on the frame to shake the lever to intermittently contact the paper transferred by the pickup roller (3),

wherein the shaking unit comprises:

a resilient member (11) biasing the lever (including 4 and horizontal portion of 7) in a first direction,

a motor (30) moving the lever (including 4 and horizontal portion of 7) in a second direction to selectively allow the contact surface (i.e., outer surface of 4) to contact the paper (see Figs. 6 and 7),

a shaft (17) connected to the lever (including 4 and horizontal portion of 7),

a shaking plate (vertical portion of 7) connected to the shaft (17), and

a cam (8) connected to the motor (30) to contact the shaking plate.

Regarding claim 33, Fig. 1 shows that the shaft (17) is parallel to a width direction of the paper perpendicular to the paper feeding direction.

Regarding claim 36, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame, a pickup roller (3) which picks up paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3) in a paper feeding path, the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) fixedly disposed on the paper feeding path to apply a first paper feeding resistance force to the paper fed by the pickup roller (3),

a lever (including 4 and horizontal portion of 7 in Fig. 4) movably disposed on the paper feeding path to selectively apply a second paper feeding resistance force to the

paper fed by the pickup roller (3), the lever (including 4 and horizontal portion of 7) being installed on a lever shaft (17) (via the vertical portion of 7) rotatably installed on the frame;

a plate (vertical portion of 7) extending from the lever shaft' (17), and
a power source (including 30 and 8) controlling the lever (including 4 and horizontal portion of 7), by intermittently contacting the plate (vertical portion of 7), to selectively move with respect to the paper fed by the pickup roller (3) to contact the paper.

Regarding claim 38, Figs. 1-4, 6 and 8 disclose a method of picking up sheets of paper in a printer, the method comprising:

intermittently applying a friction force via a force applying unit (including 4 and horizontal portion of 7), to a rear side of a sheet of paper picked up by a pickup roller (3) installed in the printer, to prevent the paper from not being picked-up, and prevent double feeding of the paper, wherein the force applying unit comprises

a shaft (17) installed on the printer,
a plate (vertical portion of 7 in Fig. 4) extending from the shaft (17)
a contactor (including 8) installed on the printer and intermittently contacting the plate (vertical portion of 7 in Fig. 4) to rotate the shaft (17), and
a lever (including 4 and horizontal portion of 7) rotating with the shaft (17) to intermittently apply the friction force. See Figs. 6 and 7 for intermittent application of friction force, as claimed.

5. Claims 37-38, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,217,017 (Yamazaki).

Regarding claim 37, Figs. 1-11 show an apparatus for picking up sheets of paper (11) in a printer (Abstract), including

- a pickup roller (20) installed in the printer;

- an intermittent force applying unit, comprising

 - a shaft (29) installed on the printer,

 - a plate (including 34 in Fig. 8) extending from the shaft (29), and

 - a contactor (including 11) installed on the printer and intermittently

- contacting the plate (including 34) to rotate the shaft (29), and

- a lever (including 28) installed on the shaft (29) and intermittently applying a friction force, under influence of the intermittent force applying unit, to a rear side of a sheet of paper picked up by the pickup roller (20), to prevent the paper from not being picked-up and prevent double feeding of the paper. It is noted that the recited "rear side of a sheet of paper" can be any one of the different sides of the sheet of paper.

Regarding claim 38, Figs. 1-11 disclose a method of picking up sheets of paper in a printer, the method comprising:

- intermittently applying a friction force, via a force applying unit, to a rear side of a sheet of paper picked up by a pickup roller (20) installed in the printer, to prevent the paper from not being picked-up, and prevent double feeding of the paper, wherein the force applying unit comprises

 - a shaft (29) installed on the printer,

a plate (including 34) extending from the shaft
a contactor (including 11) installed on the printer and intermittently contacting the plate (including 34) to rotate the shaft (29), and
a lever (including 28) rotating with the shaft (29) to intermittently apply the friction force. It is noted that the recited "rear side of a sheet of paper" can be any one of the different sides of the sheet of paper.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,000,689 (Furuki et al.) as applied to claim 6 above, and further in view of U.S. Patent No. 5,443,251 (Kan et al.). The Furuki et al. patent discloses a friction pad, but does not specifically show that such friction pad is formed of a rubber material.

Figs. 27-29 of the Kan et al. patent show that it is well known to provide a friction pad (57) made from rubber material on a cam operated lever (57b) to prevent double feeding of sheets. See column 20, lines 51-54. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the contact surface of Furuki et al. with a friction pad formed of a rubber material, to prevent double feeding of sheets, as taught by Kan et al. See also column 14, lines 5-11 of Kan et al.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,000,689 (Furuki et al.) in view of U.S. Patent No. 5,485,991 (Hirano et al.). The Furuki et al. patent meets the limitations of the claim except that it employs a coil spring rather than a leaf spring in order to hold the shaking plate against the cam.

Fig. 20 of the Hirano et al. patent discloses that it is well known to bias a movable member (13) into contact with a cam (10) using a leaf spring (12). More specifically, the Hirano patent shows that these two elements were art recognized equivalents at the time of the invention in those shaking applications where it is immaterial whether a leaf spring or a coil spring is used for holding a shaking plate against a cam. Therefore, one of ordinary skill would have found it obvious to substitute a leaf spring for the coil spring of Furuki et al. to facilitate holding of the shaking plate against the cam as suggested by Fig. 20 of the Hirano et al. patent.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,000,689 (Furuki et al.).

Regarding claim 15, Figs. 1-4, 6 and 8 show an apparatus for preventing paper double feeding in a paper feeding unit of a printer having a frame, a pickup roller (3) which picks up sheets of paper stacked on a paper cassette (near 1) and transfers the paper into the printer, and a plurality of paper guides (lower portions labeled 20 on both sides in Fig. 8) which are installed at a front portion of the paper cassette (near 1) and guide the paper transferred by the pickup roller (3), the apparatus comprising:

a stripper (upper slanted portions attached above 20 on both sides in Fig. 8) which is installed to be inclined at a predetermined angle with respect to the paper stacked on the paper cassette (near 1), and attached to at least one front side of each of the paper guides (see, e.g., Fig. 8),

a lever (including 4 and the horizontal portion of 7 in Fig. 4) which is installed at a side of the stripper and has a contact surface (i.e., outer surface of 4) contacting the paper transferred by the pickup roller (3),

a lever shaking unit (including 8) which shakes the lever to intermittently contact a side of the paper transferred by the pickup roller (3) and

a lever shaft (17) which is placed at the side of the stripper and rotatably installed on the frame of the printer, wherein the lever (including 4 and lower portion of 7) is fixed on the lever shaft (17) (fixed via vertical portion of 7 to shaft 17), and the lever shaking unit (including 8) shakes the lever shaft (17) so that the lever is shaken,

wherein a friction force is intermittently applied to the side of the paper such that double feeding of the paper is prevented (see Abstract), and the lever shaking unit comprises:

a shaking plate (vertical portion of 7 in Fig. 4) fixed on the lever shaft (17).

The Furuki et al. patent also discloses a motor (30), which is operatively coupled to the shaking plate and periodically shakes the shaking plate so that the lever coupled with the lever shaft is shaken. The Furuki et al. patent meets the limitations of the claim except that it employs a motor rather than a solenoid in order to shake a shaking plate. However, these two elements were art recognized equivalents at the time of the

invention in those shaking applications where it is immaterial whether a motor or a solenoid is used for shaking a shaking plate. Therefore, one of ordinary skill would have found it obvious to substitute a solenoid for the motor of Furuki et al. to facilitate shaking of a plate as suggested by Furuki et al. in Fig. 4.

Allowable Subject Matter

9. Claim 35 is allowed. Claims 10 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Also, claim 3 would be allowable if amended to overcome the rejection under 35 U.S.C. 112, second paragraph.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kathy Matecki

**KATHY MATECKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600**